XTRD-400C C-Band High Power Rack Mount Amplifiers

- **400 Watts**
- **Power Factor Correction**
- **Digital Display**
- **Control Interface**
- **High Efficiency**

The XTRD-400 is a highly efficient rack mountable traveling wave tube amplifier (TWTA) designed for fixed and mobile uplink applications.

The unit includes RF gain control, a solid state pre-amplifier, RF filters, cooling, and monitoring and control (M&C) systems.

Rack space is conserved because the amplifier occupies only 3 rack units (5¼ inches) of a standard 19-inch rack cabinet. Nominal weight is 56 pounds.

The unit features a menu driven front panel display and RS-232/422/485 serial port interfaces for complete computer control. RF, traveling wave tube, and default parameters are easily monitored on the four line front panel display.

Gain control is provided via the front panel or through the serial interface.

The XTRD-400 incorporates high efficiency, dual stage collector TWTs. Reliability is enhanced because both prime power consumption and internal operating temperatures are reduced for both the linear and saturated modes of operation.

Power factor correction circuitry is also included which minimizes line current distortion and reduces the required Volt-Amps input.

The automatic features of the high frequency resonant conversion power supply include quick recovery from prime power outages and mulitiple helix fault resets (three fault cycles.)

Depending upon user requirements these amplifiers can be configured for either single thread or redundant system operation.

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PERFORMANCE SPECIFICATIONS

Parameter	XTRD-400C C-Band
FREQUENCY RANGE	5.850 to 6.425 GHz
(extended frequency coverage) available	(5.850 to 6.650 GHz)
OUTPUT POWER	
Traveling Wave Tube	400 W
Rated Power @ Amplifier Flange	350 W
GAIN	
Large Signal, minimum	70 dB
Small Signal, minimum	75 dB
Attenuator range (continuous)	25 dB
Maximum SSG Variation Over:	
Any Narrow Band	1.0 dB per 40 MHz
Full Band	2.5 dB / 575 MHz
Slope, maximum	±0.04 dB/MHz
Stability, 24 Hr maximum	±0.25 dB
Stability, Temperature	±1.0 dB maximum over temperature range at any frequency
INTERMODULATION with two equal signals	-18 dBc maximum with two equal carriers @ 4 dB total output backoff
HARMONIC OUTPUT, maximum	-60 dBc
AM/PM CONVERSION, maximum	2.5°/dB 6 dB below rated power
NOISE POWER, maximum	
Transmit Band	-70 dBw/4 kHz
Receive Band	-150 dBw/4 kHz 3.7 to 4.2 GHz
GROUP DELAY, maximum	
Bandwidth	Any 40 MHz
Linear	0.01 nsec/MHz
Parabolic	0.005 nsec/MHz^2
Ripple	0.5 nsec/P_K-P_K
RESIDUAL AM NOISE, maximum	-50 dBc to 10 kHz -20 (1.5 + logf) dBc to 500 kHz -85 dBc above 500 kHz
PHASE NOISE, maximum	10 dB below IESS phase-noise profile AC fundamental -50 dBc Sum of all spurs -47 dBc
VSWR	
Input, maximum	1.3:1
Output, maximum	1.3:1

PRIME POWER

100-260 VAC
47 to 63 Hz, single phase
0.95 Minimum Prime Power Factor
Maximum Input VA: 1550

CE COMPLIANT

OPTIONS

Extended Frequency Coverage
1:1, 1:2, 1:N Redundancy
Variable Phased Combined
Integrated Linearizers

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50° C to +70° C
OPERATING TEMPERATURE RANGE	-10° C to +50° C
HUMIDITY	Up to 95% Noncondensing
ALTITUDE	10,000 feet MSL maximum
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

INTERFACE

TYPE		FUNCTION		
CONTROLS	Local	Local/remote	AC Power ON/OFF	
	Local and Remote	Gain	High Voltage ON/OFF	Fault Reset
		Min/Max Power Alarm/Fault	Audio Alarm ON/OFF	Lamp Test
		Reflected Power Alarm/Fault	Units (Watts, dBm, dBW)	Heater Standby ON/OFF
STATUS	Front Panel LEDs	Standby	Power	Heater Time Out (FTD)
		Local	Remote	Heater Standby
		Summary Fault	High Voltage	
	Front Panel Digital Display	Power Out	Beam Hours	Faults:
		Reflected Power	Helix Current	High VSWR
		TWT Temperature	Helix Voltage	High Voltage
		Heater Hours		Helix Current
				TWTTemperature
	Dry Form-C Relay Contacts (Two)	Summary Fault		
COMPUTER	Hardware Interface	Two Ports: RS-232 & RS-422/RS-485		
SERIAL PORT	Xicom Command Set	ASCII Commands		
RF SAMPLE PORT COUPLING		-37 dB Nominal		

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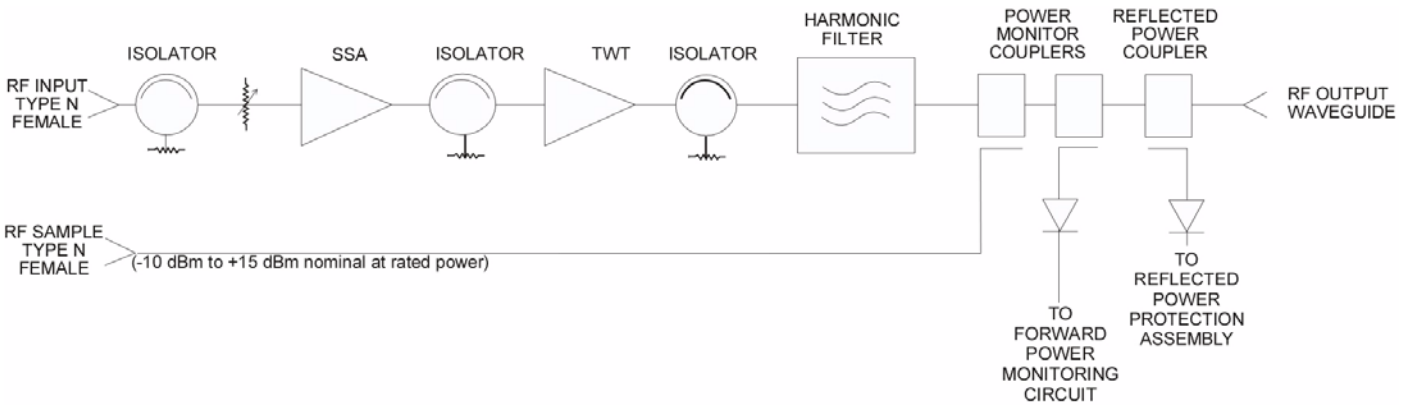
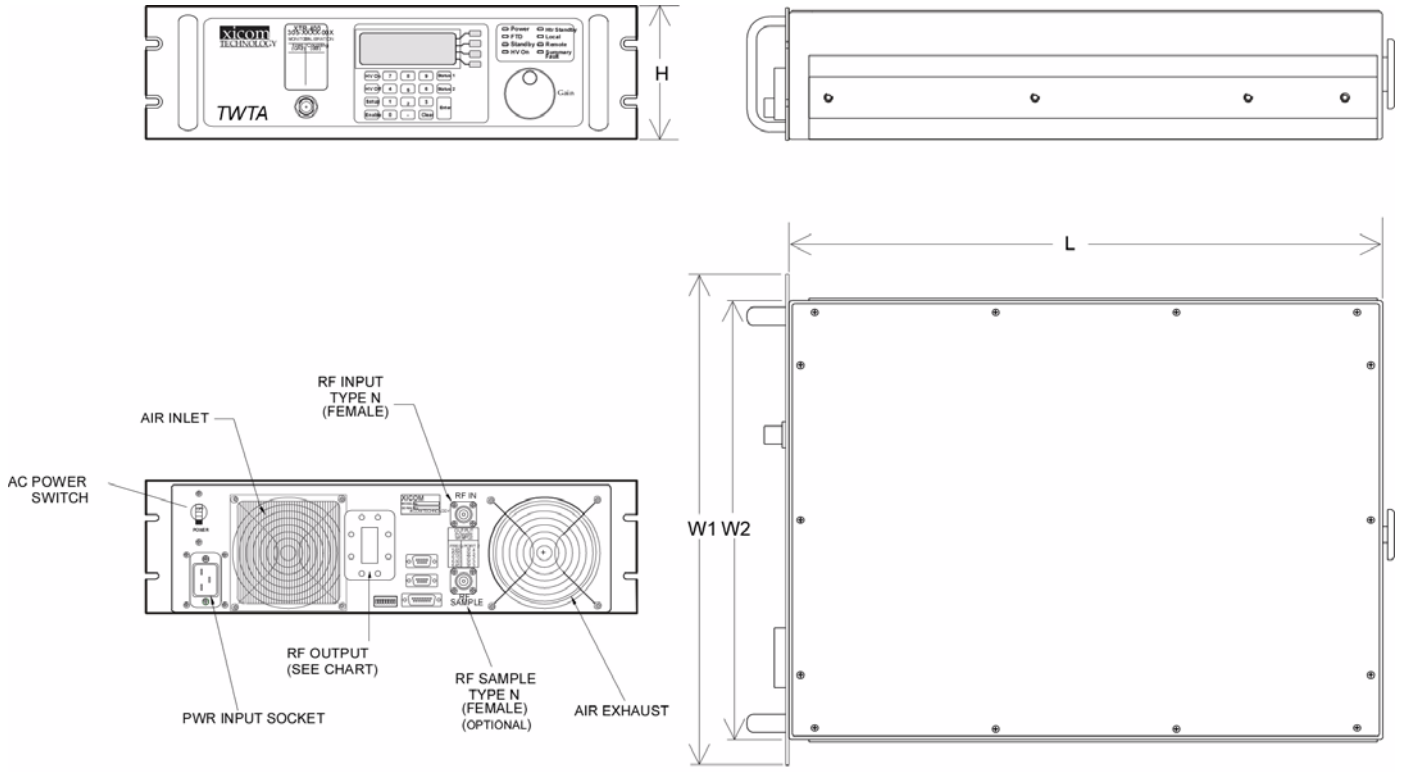
xicom TECHNOLOGY

Block Diagram



Outline Drawing



RF OUTPUT (WAVEGUIDE FLANGE)
C-BAND-CPR-137G

DIMENSIONS		
	inches	centimeters
W1	17.00	43.18
W2	19.00	48.26
L	23.00	58.42
H	5.22	13.26

Nominal Weight = 56 lbs (25.4 kg)

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